

It is clear from Figure 4.11 that the pH of the salt-water solutions had no significant fluctuations over time. This means that the alkalinity of the solution did not change over time, which in turn indicates that the pH of the solution itself should not affect the accelerated corrosion test results. ACI 222R-96 states that the alkalinity of concrete actually protects the reinforcing steel from low levels of chloride attack by forming a protective barrier on the surface of the steel. The range for this protection is considered a pH value between 8 and 13. At pH levels above or below this, the layer of protection around the steel can be more readily broken down and corrosion is more likely to occur. As shown in Figure 4.11, at no time during the experiments, the pH level in any of the environments entered into the range between 8 and 13.

The target temperature for the specimens in the baths and chamber was 130°F for both the wet and dry cycles of the tests in order to further accelerate the corrosion process. Figure 4.12 shows temperature vs. time for the baths and chamber environment.

It can be observed that fluctuations in temperature occurred frequently over time, but the average temperature was kept relatively close to the target of 130°F.

The only environment for which the humidity was measured was the control environment. The target humidity for this environment was set at 50% RH. Figure 4.13 shows the humidity and temperature changes over time for the control environment.

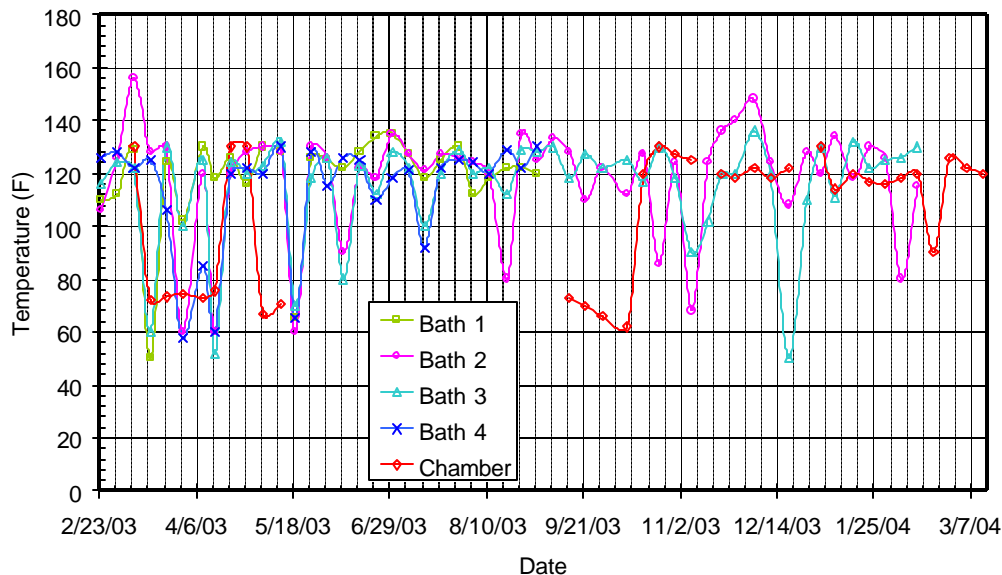


Figure 4.12 - Temperature Over Time for Bath and Chamber Environments